

# Teaching and Assessing Critical Reasoning Through the Use of Entrustment

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## The Challenge

Problems with clinical reasoning (wrong, delayed, or missed diagnosis and/or treatment) make up a sizable portion of preventable adverse outcomes.<sup>1,2</sup> In 1 review of diagnostic errors, 75% were at least in part due to cognitive errors.<sup>3</sup> Of 320 cognitive factors identified in 74 cases, 45 were due to faulty data gathering and 264 resulted from errors in problem representation and clinical reasoning.<sup>1</sup> Teaching good clinical reasoning is an important component of resident education.

## What Is Known

One framework for defining “Good Clinical Thinking” is presented in BOX 1. A good clinical thinker routinely approaches a clinical presentation by using an analytic approach, a nonanalytic approach, or a combination.<sup>4</sup> The nonanalytic approach is more common, accounting for 80% of clinical reasoning and is based on pattern (or illness script) recognition, and the use of heuristics.<sup>5</sup> This allows for the rapid diagnosis of clinical presentations that match preformed illness scripts. When such matches are not apparent, clinicians must transition to a more deliberate hypothesis-driven model for diagnosis. Clinicians often toggle back and forth between the 2 methods. The ability to evaluate for potential errors in the diagnostic process differentiates the seasoned clinician from the novice.

## Teaching and Assessing Residents’ Clinical Reasoning Skills

Residents must learn the importance of thinking critically to minimize error; faculty needs explicit ways of teaching these skills.

A set of 12 tips to avoiding error in clinical reasoning (BOX 2)<sup>6</sup> offers a concise, easy-to-use set of concepts for discussion with residents, and allows them to gain a better understanding of principles relevant to making accurate diagnostic decisions. In addition, programs need a way to

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## Rip Out action items

Clinician/Supervisors must:

1. Define the K/S/A of “good thinking” and frame them as factors in entrustment decisions.
2. Know the trainee has demonstrated competence and is ready to progress to the next stage of his or her training or career.
3. Develop and use clear definition of expected outcomes (“good thinking” with decrease in diagnostic errors).

Program Directors must:

1. Require assessment and create/adapt evaluation systems capable of demonstrating that clinical reasoning is done consistently and within the contextual needs of the clinical environment.
2. Promote faculty development—creating a shared “mental model” or understanding of “good thinking” and how it is assessed and evaluated.
3. Identify milestones that relate to good thinking and avoid diagnostic errors.
4. Formalize the evaluation of these milestones.

assess and document growth in residents’ clinical reasoning skills. This assessment is relevant to “a trainee’s readiness to bear *professional* responsibility.” It calls for validated tools that assess clinical reasoning in learners, especially tools for the bedside and clinic.<sup>7</sup>

Some initial tools to assess resident clinical reasoning are shown in BOX 3. They can be customized through the use of the “critical thinking” milestones (BOX 3) to inform the assessment process.

## BOX 1 ELEMENTS OF “GOOD CLINICAL THINKING”

- Sensitivity
  - Interest in gaining more information
  - Seeking alternatives
- Inclination
  - Willing to invest energy in thinking the matter through
- Ability
  - Possess the cognitive ability

**BOX 2 12 TIPS “TO PREVENT DIAGNOSTIC ERROR”<sup>6</sup>**

- Understand heuristics
- Use “diagnostic timeouts”
- Think “worst-case scenario medicine”
- Systematic approach to common problems
- Ask why
- Teach/emphasize physical examination
- Teach Bayesian theory
- Acknowledge your emotions
- Identify what does not fit
- Embrace zebras
- “Slow down”
- Admit mistakes

**How You Can Start TODAY**

1. Determine which elements of “Good Clinical Thinking” (BOX 1) and which assessment tools (BOX 3) can inform the assessment of residents’ diagnostic skills in your program’s particular context.
2. Calibrate faculty to the assessment process and use of these tools to evaluate trainee critical thinking skills.
3. Prepare trainees for the assessment process by explaining the importance of critical thinking skills and the goals of the assessment process.
4. Use the 1-Minute Preceptor (BOX 4).
5. Increase the focus on clinical reasoning in conferences (morning report, morbidity and mortality).
6. Institute the expectation that tools such as the 1-Minute Preceptor<sup>9</sup> and SNAPPS<sup>8</sup> be used regularly by faculty.

**What You Can Do LONG TERM**

1. Build and provide faculty development programs in teaching and assessing clinical reasoning skills for clinical faculty.
2. Promote a teaching culture centered on clinical reasoning.

**BOX 3 TOOLS TO ASSESS CLINICAL REASONING**

- Portfolio—with required defense by learner
  - Case log
  - Focused narrative writing
  - Admit mistakes
- Chart stimulated recall
  - Structured questioning regarding the 12 tips milestones to assess clinical thought, using the medical record (history and physical or discharge summary)
- Bedside rounds
  - The 1-Minute Preceptor
  - The SNAPPS precepting technique<sup>8</sup>
  - Standardized direct observation (mini-CEX)
  - Diagnostic timeout

Abbreviation: CEX, clinical evaluation exercise.

**Resources**

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**BOX 4 THE 1-MINUTE PRECEPTOR<sup>9</sup>**

**Five Microskills: Specific Tips To Prevent Diagnostic Errors**

1.	Get a commitment	
2.	Probe for supporting evidence	Ask why or what does not fit
3.	Teach a general rule	Worst-case scenario or teach/emphasize PE
4.	Reinforce what was done right	Understand heuristics
5.	Correct mistakes	Acknowledge emotions or admit mistakes

Abbreviation: PE, physical exam.